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Accommodation in Sustainable Hotels: Application of the Theory of Planned Behavior by Structural Equation Modeling

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ABSTRACT

This research aims to analyze the determinants of the Theory of Planned Behavior (TPB) to explain the intention of the behavior of accommodation in sustainable hotels. The research had characteristics of exploratory, quantitative, and inferential research, through the application of a survey, using the instrument of Han et al. (2010), reaching a total sample of 383 responses of Brazilian tourists. Data analysis was performed using the Structural Equation Modeling (SEM) technique estimated by Partial Least Squares (PLS). The results validated the perspectives of the TPB, with statistical significance for the relationships between the variables of attitude, subjective norm and perceived behavioral control in relation to the intention to stay in sustainable hotels. Attitudinal beliefs had the greatest influence of the intention to stay in sustainable hotels. These results have theoretical and practical implications, from the validation of the TPB literature to the intention of behavior of consumption of sustainable services, and the indication of the main determinant of the intention of hosting, which can result in more accurate marketing strategies and better economic and social results.

RESUMEN

Esta investigación tiene como objetivo analizar los determinantes de la Teoría del Comportamiento Planificado (TCP) para explicar la intención del comportamiento del

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alojamiento en hoteles sostenibles. La investigación tuvo características de investigación exploratoria, cuantitativa e inferencial, mediante la aplicación de una encuesta, utilizando el instrumento de Han et al. (2010), alcanzando una muestra total de 383 respuestas de turistas brasileños. El análisis de los datos se realizó utilizando la técnica de modelado de ecuaciones estructurales (MEE) estimada por mínimos cuadrados parciales (MCP). Los resultados validaron las perspectivas del TCP, con significación estadística para las relaciones entre las variables de actitud, norma subjetiva y control conductual percibido en relación con la intención de permanecer en hoteles sostenibles. Las creencias actitudinales tuvieron la mayor influencia de la intención de alojarse en hoteles sostenibles. Estos resultados tienen implicaciones teóricas y prácticas, desde la validación de la literatura de TCP hasta la intención de comportamiento del consumo de servicios sostenibles, y la indicación del principal determinante de la intención de hospedaje, que puede resultar en estrategias de marketing más precisas y mejores condiciones económicas y resultados sociales.

Keywords: Hospitality; Sustainable; Behavior; Tourism; Attitude

Introduction

For a long time, natural resources were used in an uncontrolled manner, without considering the future and the impact that this could cause, both for future generations and for the environment itself (Silva et al., 2017). However, in the 1960s, after a period of intense urban growth, environmental issues in Brazil intensified both in speeches and in studies (Barbosa, 2008).

The consequences that began to appear in the environment affected the great urban centers and served as a paradigm for this change in thinking and awareness. Currently, the interest of individuals and economic agents to incorporate certifications with market appeal to attract new customers and improve their presence in the market is notorious (Cavero-Rubio & Amorós-Martínez, 2020; Silva et al., 2017).

As a result, society itself exerts pressure on the market, demanding a commitment to the environment, both for preservation and for reducing the use of natural resources. Silva et al. (2017) affirm that, as members of society, companies are co-responsible for the preservation of the environment and that they must always take this issue into account in their management.

In the field of hospitality, the demand for more sustainable hotels has been growing more and more, thus emerging sustainable hotels, which are characterized by the search for minimizing the negative environmental and socio-cultural impact of people on vacation, promoting radically different approaches in relation to conventional tourism (Wearing, 2001). In the last decades, Melissen (2013) points out that sustainable accommodation has evolved considerably with an impact and a relevant position in the background of sustainable tourism.

In addition to obtaining a competitive advantage, differentiating itself from the means of hosting without this sustainability and consequently the appeal to this portion of

users, other benefits may arise, such as reduced energy and operating costs, improved company image, regulation government and customer retention (Chirieleison et al., 2020; Enz & Siguaw, 1999; Han et al., 2010; Han & Yoon, 2015). Therefore, Manaktola and Jauhari (2007) points this is a growing sector in the competitive market.

The literature on determinants of sustainable accommodation is scarce, but some studies point to some related factors. Buffa (2015) when relating sustainable tourism to the category of hard path young tourists (HPYT) points to factors such as the prevalence of women, families without children, students and graduates, participation in cultural and voluntary work, who choose to do tourism in small groups, whose decision is motivated by strong environmental commitment and emphasis on personal experience. Islam and Chandrasekaran (2016) positively related religiosity to ecologically conscious consumption. On the other hand, the managers' decision for green marketing strategies is determined by their age, training in business administration, residing in the western and valuing volunteering (Dief & Font, 2010).

This research is developed from the limitation of knowledge about determinants that influence the behavior of sustainable accommodation, being necessary to ask: what are the beliefs that lead the individual to choose sustainable hotels? For this reason, the research aims to analyze the determinants of the intention to stay in sustainable hotels from the perspective of the Theory of Planned Behavior.

The theoretical discussion about the formation of the users' accommodation intentions to choose a sustainable hotel has been scarce (Han et al., 2010). The knowledge of factors that influence guests, considering social and environmental components, can provide a more in-depth view of their decision-making processes, and an understanding of their behaviors.

Understanding the impact of sustainability practices on the behavior of choosing hotels becomes relevant to the continuity of organizations in this sector (Han et al., 2019). In addition, the results may point out guests' preferences for a more sustainable market, reducing the consumption of natural resources (Cvelbar et al., 2017).

This research becomes relevant because it is applied to individuals from a developing country, Brazil, whose sustainability dilemma has faced debates in the face of developmentalism and the differential of local socio-cultural factors (Berezan et al., 2014). From the knowledge of the influence capacity of the variables in the intention, it is possible to develop strategies focused on the individual's characteristics.

Buffa (2015) reveals that young people with a high academic background are more sensitive to socio-environmental needs, favoring sustainable tourism. Our research with a higher academic background, considers a sample formed by higher education teachers who are responsible for transferring technical knowledge and moral values to young people of the new generations, which will naturally reflect on the behavior of consumers of the future.

1. Theoretical framework

The practice of environmental management can be identified as an important communication channel to maintain a harmonious relationship between the

environment and society. It also has a powerful tool for transforming society, which would be the legal apparatus, which makes us debate about the rights and duties of human beings in relation to the environment.

The improvement of a company's environmental performance can also lead to an economic-financial improvement, without necessarily increasing costs (Gurlek & Tuna, 2018; Porter & Van der Linde, 1995). To obtain development, sustainable management can be understood as business management, respecting the limits of the environment, thus avoiding any problems (Dias, 2009).

Environmental actions have taken an increasingly integrated position with administrative, marketing and finance functions (De Souza, 2002). In this context, consumers of products and services also become aware that their consumption behavior is relevant to influence business practices, whether predatory to nature or pro-environment.

Conscious consumer behavior takes into account economic, social and environmental aspects (Zimmer et al., 2019). The socio-environmental characteristics of the lodging facilities are perceived and appreciated by customers (Song et al., 2020).

Marketing and operational strategies perceive these users' behavioral preferences and also start to make their decisions considering the appeal that sustainable products and services have (Ribas et al., 2017). The consumer starts to worry about the impacts that caused by his acquisition, positive or negative, that is, he applies a sustainable filter in his behavior (Zimmer *et al.*, 2019).

In some economic segments, the socioenvironmental appeal may be higher or lower, depending on demographic profile variables, such as age, sex, marital status, income, education, number of children, social status, among others (Islam & Chandrasekaran, 2016). Studies like Dief and Font (2010) show that variables in the context of the organization affect the perception of guests, mainly of western origin (Dief & Fonte, 2010).

Same revealed by Yin and Chen (2019), in Brazil there is also skepticism from guests about whether certain disclosures of socioenvironmental practices would indeed be true. In addition, people from different regions exhibit different types of behavior in the face of similar stimuli (Campos-Soria et al., 2018).

In this context of analyzing the individual's behavior, a theoretical lens is needed to direct the researcher. Therefore, the research established the analysis guided by the Theory of Planned Behavior, developed by Ajzen (1991) to predict human behavior in some context, taking into account the attitude and normative beliefs, and the perceived behavioral control as determinants behavioral intention and the behavior itself (Ajzen, 1991).

1.1 Theory of Planned Behavior

The Theory of Planned Behavior (TPB) was developed by Ajzen (1991) to explicate human behavior. TPB is an offshoot of the Theory of Rational Action (TRA), proposed by Fishbein and Ajzen (1975), which is created on the rational use of evidence for decision, that is, behavior is determined by intention, which in turn is conditioned by attitudes.

The performance of these behaviors basically depends on non-motivational factors, which are indispensable resources and opportunities, such as time, money or even skill (Ajzen, 1991). In the TPB proposal, Ajzen (1991) indicates that the individual's intention to affect a certain behavior is the main determinant of the behavior. The intentions are presumed to capture the motivational factors that influence a behavior, which in the present proposal employs TPB (Ajzen, 1991).

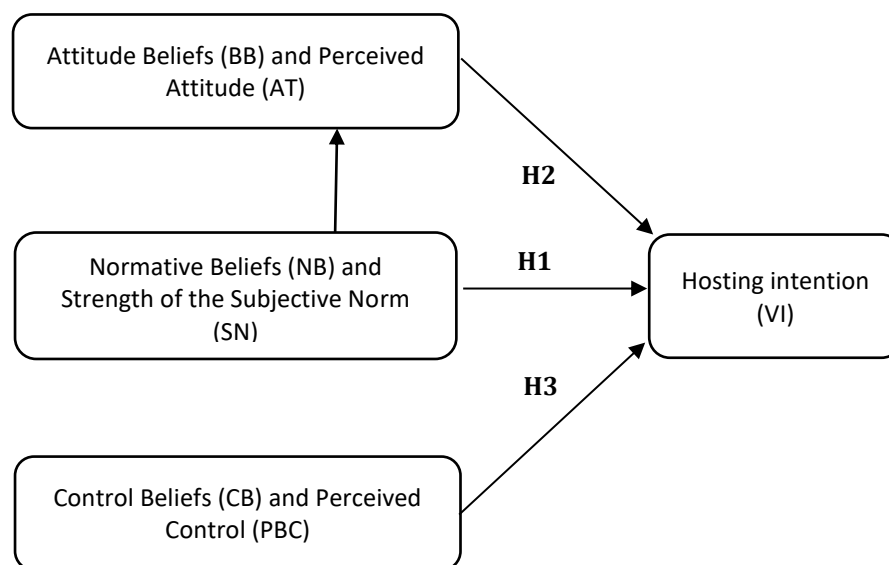


Figure 1: Research model

Same all theories developed to predict human behavior, TPB is geared towards behavioral intention with intention as a direct proxy that precedes effective behavior (Marçal et al., 2018). Thus, the theory can analyze the influence on purchase through intention (Hoppe et al., 2012).

Ajzen (1991) points out that behavioral beliefs or attitude link the behavior of interest to the expected results. A behavioral belief is the possibility that the behavior will produce a certain result (Ajzen, 2002). These beliefs regulate the predominant attitude towards the behavior, and the evaluation of result subsidizes to the attitude in direct proportion to the person's subjective possibility that the behavior produces the result (Ajzen, 1991; 2019). The attitude towards a behavior is the gradation to which the performance of the behavior is appreciated, whether positive or negative (Ajzen, 2019). Specifically, the power of each belief is weighted by the valuation of the result, and the results are accumulated (Ajzen, 1991).

Normative beliefs of individuals refer to the behavioral expectations of reference groups, as family, friends, co-workers and other people of relevant opinion (Ajzen, 1991; 2002). The motivation to fulfill expectations contributes to the subjective norm in direct percentage to the possibility of the reference person's expectation (Ajzen, 1991). The subjective norm can be considered as the perceived social pressure to perform a certain behavior.

The author proposes that the subjective norm is determined by the total set of normative beliefs regarding the perceptions of relevant people (Ajzen, 1991; 2002). These factors can act with a direct impact on intention and behavior or as mediators,

without disregarding the possibility of acting as moderators or mediators of other sets of beliefs (Han et al., 2018).

Ajzen (1991) points out that control beliefs relate with the perceived presence of factors that can influence the accomplishment of a behavior. The perceived control of each factor to prevent or facilitate the behavior provides to the perceived behavioral control in straight proportion to the probability of perceiving the attendance of that control.

Perceived behavioral control denotes to people's perception of their capacity to perform certain behavior (Ajzen, 2002). Insofar as this belief is a precise image of real behavioral control, perceived behavioral control can be used to predict behavior (Ajzen, 1991). For Ajzen (2002), the realization of a behavior depends a satisfactory intention, and also on a enough level of behavioral control. Real behavioral control refers to the person's capabilities, resources, skills and other requisites necessary to carry out the behavior in question (Ajzen, 1991; 2002).

The intention is a marker of readiness to make a certain conduct, being considered the immediate antecedent of the behavior (Ajzen, 2002). The intention is founded on the attitude towards behavior and the subjective norm, each weighted by its relevance about to the behavior and peoples of interest, and its influence moderated by the perceived behavioral control (Ajzen, 1991).

Following the intention, behavior is the observable answer in relation to a fact, the observable object of a cognitive process that generates a result. Clients form beliefs about the attributes of a service, then create affective responses and attitudes towards their tastes or aversions, which in turn lead to behavioral interactions, later converted into effective behaviors, including accommodation (Berezan et al., 2014; Fishbein & Ajzen, 1975).

The image of a sustainable organization broadens the individual's interest in performing a behavior (Horng et al., 2018; Hwang & Lyu, 2020). Sustainable practices increase customer satisfaction and, as a result, could increase customer retention and hotel occupancy related to their personal beliefs (Lee et al., 2018). In view of the theoretical construction, three research hypotheses were established.

Normative beliefs can reinforce an individual's intentions to hire or not to hire a certain service or product (Ajzen, 2017). In the context of sustainable consumption, beliefs contribute to consumers making their choices, paying more for products that do not harm the environment, such as organic foods (Bishop & Barber, 2015).

Regarding the perception of waste recycling, Han et al. (2018) identified a mediating effect in relation to other beliefs. The relationship between references and positive emotions is related to the accommodation intentions (Su et al., 2016). Thus, the hypothesis is formulated that:

H₁ - The external perception of the individual's sustainable awareness positively influences their intention to use sustainable means of accommodation (SN → VI).

When conceptualizing the attitude towards behavior, Han et al. (2010) found that hotel visitors have a positive attitude towards sustainable and ecological practices in hotels. The importance of the attitude towards ecological practices and sustainability in the hotel sector is also identified in the studies by Manaktola and Jauhari (2007), as well as in the research by Kim and Han (2010).

The sustainable image of a hotel can affect behavioral intentions, such as the intention to stay, to revisit, to offer positive recommendations or awards (Lee et al., 2010). Not believing that the companies that promote themselves are in fact sustainable, individuals with a sense of sustainability stop consuming their services (Yin & Chen, 2019).

In order to create a sustainable attitude among potential guests, hotel professionals must obtain consumer support and promote the positive image of environmental practices in hotels (Hashim et al., 2013). The consumer's attitude towards sustainable initiatives in the hotel sector can be well-defined as a tendency of consumers to respond favorably or unfavorably to the hotel sector's efforts with sustainable environmental practices, thus formulating the hypothesis that:

H₂ - The individual's attitude of sustainable awareness positively influences the intention to use accommodation facilities with environmental practices (AT → VI).

A study about the consumer's motivations to understand sustainable practices in the hotel sector, has resulted in the accommodation consumer in China wanting to cooperate with the accommodation owner's ecological efforts. However, consumers have shown skepticism when it comes to imposing a higher value compared to another hotel with the equivalent standard.

This survey showed that consumers were willing to collaborate in some initiatives such as saving water and electricity. Among the ideas that respondents supported as sustainable practice, there is the idea of not renewing bedding daily, as well as the use of bags with recyclable material to wash clothes.

The authors suggest that additional support from state organizations is needed to spread education, ecological awareness among consumers, to improve sustainable practices in hotels. In fact, a study by Gibson et al. (2010), found that support from the Green Tourism Association (GTA), Toronto (Canada), helped in the success of ecological education and contributed to the success in development sustainable practices in the Canadian hotel sector. Leaniz et al. (2019) identified that control by certifications improves the perception and intention to use the accommodation, thus formulating the hypothesis that:

H₃ - The perceived behavioral control positively influences the intention to use accommodation with environmental practices (PBC → VI).

2. Research Method

The research promoted is characterized as quantitative, descriptive and exploratory, analyzing the typical variables of the determinants of TPB in accommodation in sustainable hotels. Data collection adopted the instrument of Han et al. (2010), translated and analyzed by experts, containing 30 questions that basically address the variables and behaviors in choosing a sustainable hotel, as shown in Table 1.

Table 1: Research instrument

Variable	Items
Attitude Beliefs (BB)	BB1 - Staying in an ecological hotel would allow me to protect the environment
	BB2 - Staying in an ecological hotel would allow me to be more socially responsible
	BB3 - Staying in an ecological hotel would allow me to experience a healthy and friendly environment in the room
	BB4 - Staying in an ecological hotel, would allow me to carry out practices in favor of the environment
	BB5 - Staying in an eco-friendly hotel would allow me to use eco-friendly products and healthy amenities
	BB6 - Staying in an ecological hotel would allow me to eat fresh and healthy food
Subjective Norm (NB)	NB1 - My family believes that I should stay in a sustainable hotel when I travel
	NB2 - My friends believe that I should stay in a sustainable hotel when I travel
	NB3 - My co-workers believe that I should stay in a sustainable hotel when I travel
Control Beliefs (CB)	CB1 - Staying in ecological hotels is expensive
	CB2 - Finding green hotels takes time and effort
	CB3 - The location of eco-friendly hotels needs to be convenient
	CB4 - My company / university / others who pay for my travel expenses encourage me to stay in certain hotels
Attitude (AT)	AT1 - For me, having a stay in a sustainable hotel when I travel is good
	AT2 - For me, having a stay in a sustainable hotel when I travel is desirable
	AT3 - For me, having a stay in a sustainable hotel when I travel is pleasant
	AT4 - For me, having a stay in a sustainable hotel when I travel is wise
	AT5 - For me, having a stay in a sustainable hotel when I travel is favorable
	AT6 - For me, having a stay in a sustainable hotel when I travel is positive
Strength of Subjective Norm (SN)	SN1 - Most people who are important to me think that I should stay in a sustainable hotel when I travel
	SN2 - Most people who are important to me, would like me to stay in a sustainable hotel when I travel
	SN3 - People whose opinions I value would prefer that I stay in sustainable hotels when travel
Perceived Control (PBC)	PBC1 - Like it or not, staying in a sustainable hotel when I travel is completely up to me
	PBC1 - I am confident as to what I want, I can stay in a sustainable hotel when I travel
	PBC1 - I have resources, time and opportunities to stay in sustainable hotels when I travel
Hosting intention (VI)	VI1 - I am willing to stay in a sustainable hotel when traveling
	VI2 - I plan to stay in a sustainable hotel when traveling
	VI3 - I will strive to stay in a sustainable hotel when traveling

The collection included 383 individuals using the survey technique, in an electronic form sent by e-mail, whose questions were predominantly answered on a seven-point Likert scale, with scales proposed from (1) to totally disagree and (7) to totally agree. In the sample, higher education teachers predominated, due to the availability of contacts and the level of income necessary for the hosting behavior, given that responses from individuals who do not traveling could skew the results.

In addition to the availability of financial resources for accommodation, the choice of teachers allows results closer to the general population, especially to future generations of professionals, due to the high capacity of teachers to influence the moral and ethical values, and the behavior of their students. The number of respondents reaches the value needed for sample reliability and validity with a 95% confidence level and a maximum

sampling error of 5% in an unknown or infinite population (Sanchez, 2014). Although the sample size allows generalizing results, it is noteworthy that non-random sampling was used, with awfully specific characteristics that need to be considered for any comparison, such as high academic training and availability of money.

The non-random sample was obtained by availability on the universities websites, reaching 3220 contacts of professors who were later invited to participate by email. The data collection period took place between May 5 and September 21, 2019. The data collection had as steps (i) the survey of e-mails and contacts; (ii) after that, a brief presentation was sent by e-mail containing explanations of its purpose, along with the questionnaire link; (iii) seven days later, a second email was sent, as a reminder to people who had not responded, reinforcing the importance of feedback.

Data analysis was performed using the structural equation modeling (SEM) technique estimated from Partial Least Squares (PLS), developed by Wold (1982, *apud* Ringle et al., 2015), which essentially performs a sequence of regressions in terms of weighting vectors, in this case 300 iterations. The technique makes it possible to estimate a series of multiple regression equations that are separate, but interdependent, simultaneously, by specifying the structural model (Hair Jr. et al., 2016).

For the analysis, the measurement model and the structural model were evaluated. The validations resulted from bootstrapping analyzes which are the best alternative to test mediation hypotheses and provide a rigorous test of the importance of indirect effects, evaluating and comparing indirect effects in mediation models (MacKinnon et al., 2004).

2. Analysis of Results

The descriptive analysis of the data allows us to know the characteristics of the sample of the research in question, thus, Table 2 presents the demographic data of the respondents of this research.

Table 2: Respondents profile

Age	N	Percent	Gender	N	Percent
18 to 27 years	60	17.2%	Feminine	195	50.9
28 to 37 years	73	20.9%	Male	187	48.8%
38 to 47 years	104	29.8%	Rather not answer	1	0.2%
48 to 57 years	68	19.5%	Formation	N	%
58 to 67 years	36	10.3%	High school	45	11.8%
68 to 74 years	8	2.3%	Graduated	30	7.9%
Standard Deviation	12.8		Specialization Completed	19	5%
Sum	349	100%	Master / Doctorate	288	75.4%
Hosting Frequency Last Year	N	Percent	Family income	N	Percent
Less than 3 times	154	40.6%	Less than 2.5 Min Wages	19	5%
3 to 5 times	144	38.0%	From 2.5 to 5 Min Wages	50	13.1%
6 to 8 times	46	12.1%	From 5 to 7.5 Min Wages	55	14.4%
9 or more	35	9.2%	7.5 Min Wages or more	258	67.5%
Sum	379	100%	Sum	382	100%

Source: Research data.

In view of the demographic data, the sample is well divided, with 50.9% of female respondents ($n = 195$), 48.8% of male respondents ($n = 187$). In addition, in relation to the training of respondents, it is noticed that 75.4% of respondents have completed master's / doctorate ($n = 288$), with that it is noted that more than half of respondents already have more advanced training that impacts positively in the answer, they have to do with their family income since 67.5% receive 7.5 minimum wages or more ($n = 258$). The characteristics of the sample allow the analysis of the different factors under the bias of gender, which is attributed that woman are more prone to sustainable tourism (Buffa, 2015). The results of the difference tests indicate that the beliefs of men and women are similar, except for the beliefs in the results of pro-environmental attitudes ($F 5.63$ and $M 5.34$, $t 2.64^{**}$), in which women reveal a higher perception about the consequences that each action can cause. The men show themselves to be more skeptical by not realizing or believing in the consequences of their actions in relation to the environment.

Table 3: Comparison between genders

Gender	Attitude Beliefs (BB)	Subjective Norm (NB)	Control Beliefs (CB)	Attitude (AT)	Strength of Subjective Norm (SN)	Perceived Control (PBC)	Hosting intention (VI)
Feminine	5.63	3.44	4.93	5.88	3.52	4.62	5.17
Male	5.34	3.49	4.92	5.45	3.87	4.78	4.93
Test t (p)	2.64**	0.30 ^{n.s.}	0.22 ^{n.s.}	4.24***	-1.89*	-1.09 ^{n.s.}	1.82*

Notes: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

In addition to understanding the consequences of their attitudes, women appreciate environmental sustainability because their average attitude was higher than that of men ($F 5.88$ and $M 5.45$, $t 4.24^{***}$). In another dimension, men have greater strength of the subjective norm ($F 3.52$ and $M 3.87$, $t -1.89^*$), perceiving with greater intensity what other people think about their behavior, that is, they are more influenced by what they believe to be the perception of the people around you. As a result of their beliefs, women were more likely to stay in sustainable hotels ($F 5.17$ and $M 4.93$, $t 1.82^*$).

3.1 Measurement Model

The analysis of the data using the statistical technique of structured equations, was performed using the SmartPLS3.2.8 software, adopting the procedures indicated by Hall (2008). The PLS path modeling method operated by Ringle et al. (2015), which essentially performs a sequence of regressions in terms of weighting vectors, in this case 300 iterations.

The choice of structural equation modeling by partial least squares (PLS-SEM) is because it allows the grouping of several observable variables into latent variables, enabling the application of several regressions simultaneously, which is required in the theoretical and operational model of TPB (Ajzen, 2002). This modeling is robust for multivariate

normality and allows the evaluation of formative variables, therefore the most appropriate method for the present study (Bido & Silva, 2019).

For assessing the validity of the constructs, discriminant and convergent validity were observed. Discriminant validity was the first to be verified, and of the 30 initial indicators in the research instrument, all proved satisfactory, with the highest load on the indicated construct. However, as a result of the convergent analysis, where some constructs had lower factor loads than expected, some variables needed to be excluded, resulting in the use of 28 remaining observable variables. The excluded variables were CB3 and CB4. Convergent validity is the next step after analyzing the factor loads. In this step, the analysis of the AVE (Average Variance Extracted), of the Composite Reliability (CC) and complementary to those of Cronbach's Alpha and R^2 is performed. The convergent factors of AVE, CC, and Cronbach's Alpha showed satisfactory values, respectively from 0.5, 0.7 and 0.7 (Fornell & Larcker, 1981), shown in Table 4.

The analysis of Table 2 demonstrates that all loads for the AVE proved to be statistically significant, that is, with values equal to or greater than 0.5 (Fornell & Larcker, 1981). The Composite Reliability indicator met the borderline values considered satisfactory in the same way as Cronbach's Alpha values, all above 0.7 for latent variables. The satisfactory indicators of Composite Reliability and Cronbach's Alpha indicate that the sample is theoretically free of bias and that the data collection instrument employed is reliable (Hair Jr. et al., 2016), for exploratory research (Ringle et al., 2014).

The calculation of Cronbach's alpha is used to verify the internal consistency of the results of each latent variable (LV), which establishes the expected error of the measurement made, and the closer to 1.00, the lower the expected error and the greater the instrument reliability (Hair Jr. et al., 2016). In the present sample, the results of Cronbach's Alpha showed an acceptable degree of fidelity.

The next step in the analysis of the discriminant validity is the verification of the latent variables of the model, which according to Fornell and Larcker (1981), is confirmed when the value of the square root of the AVE is greater than the absolute values of the correlations with the other latent variables. That is, the main diagonal needs to present higher values than for the other latent variables.

Table 4: Convergent, Discriminant Validity and Predictive Relevance

Variables	Mean	SD	Alfa	Fiab.	AVE	AT	PBC	SN	VI	R^2	Q^2
Attitude- AT	5.58	1.43	0.94	0.94	0.73	0.86				0.39	0.26
Perceived Behavioral Control - PBC	4.82	1.86	0.83	0.88	0.73	0.17	0.86				
Normative Beliefs - SN	3.58	1.86	0.96	0.97	0.93	0.43	0.26	0.97			
Hosting intention - VI	5.05	1.62	0.83	0.83	0.74	0.58	0.32	0.48	0.86	0.43	0.30

Source: Research data.

In the same way, the value of R^2 is also presented to enrich the analyzes, since it does not have a cutoff point, although the desired is the highest possible. Particularly important for the analysis of the result, revealing its relevance, is the identification and

appropriation of the determination coefficients (R^2) for the variables, which indicates how much the model explains a given variable. In the present study, it was demonstrated that the model explains 43.2% of the intention to use (VI), 38.6% of the attitude (TA) and 52.8% of the subjective norm (SN), minimized for the perceived behavioral control (PCB), only 0.001%.

The Q^2 value of the Stone-Geisser (Geisser, 1974; Stone, 1974) is a criterion of predictive relevance. The Q^2 value of the latent variables is obtained through the blindfolding procedure. According to Ringle et al. (2015), Blindfolding is a technique for reusing the sample, which systematically excludes data points and provides a prognosis of its original values, which requires the assignment of an omission distance "D" ($D = 7$).

The technique recommends that in PLS-SEM when there is predictive relevance, it adequately predicts the values of the indicators. When the Q^2 value greater than zero for the endogenous latent variable, it signals that the model has predictive relevance for this construct. In this research, the values were validated considering that in both variables the result exceeded zero.

3.2 Structural Model

The analysis of the structural model allows to statistically validate the relationships between the constructs and the connections built according to the structure of a path diagram on a theoretical basis (Hair Jr et al., 2016). To assess the validity of the structural model, the criteria are analyzed (i) size and significance of path coefficients and (ii) Pearson determination coefficients (R^2) using the Bootstrapping technique, and (iii) Predictive Relevance (Q^2) on the Blindfolding platform, in addition to the (iv) effect sizes (F^2) (Hair Jr et al., 2016).

In Bootstrapping, subsamples are created with observations taken at random from the original data set (with substitution) and then used to estimate the PLS path model. In this case, $N = 5,000$ different sub-samples were generated, as recommended by Hair Jr et al. (2016), whose results are shown in Table 5. In the bootstrapping, the structural relationships were validated.

Table 5: List of Variables

Structural Relationship	Original sample	P Value
SN \rightarrow VI	0.233	0.000
SN \rightarrow AT	0.250	0.000
AT \rightarrow VI	0.450	0.000
PBC \rightarrow VI	0.187	0.000

Source: Research data.

Table 5 also reveals the path coefficients, with the research hypotheses tested using Student's t test. It is observed that values of the path coefficients were considered significant at levels of 1%, in the relevant relations of interest. The illustration of the empirical model with the path coefficients can be seen in Figure 2.

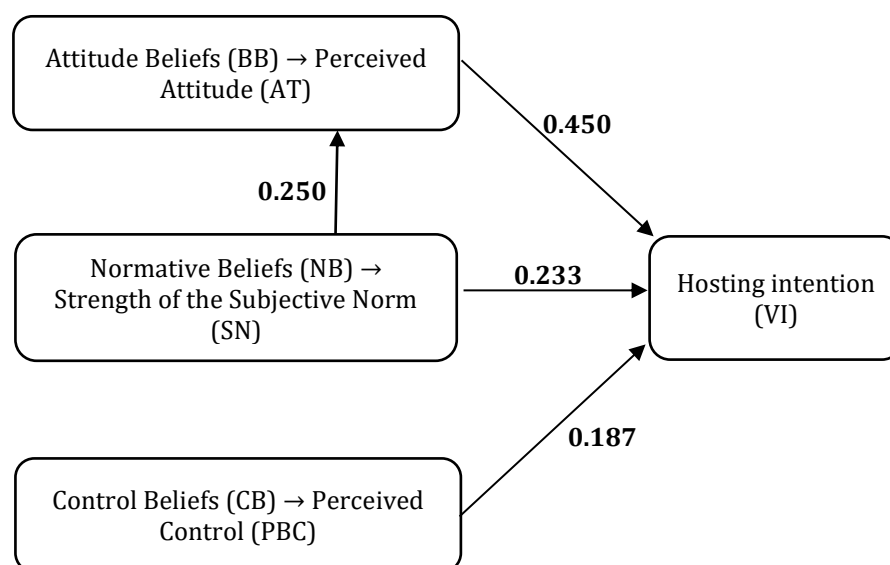


Figure 2: Research model

From the statistical results it is possible to interpret the empirical elements according to the TPB. The hypothetical relations of interest were confirmed according to the theory, that the forces of attitude, subjective norm and perceived behavioral control explain the intention to stay in sustainable hotels, corroborating studies by Horng et al. (2018), Hwang & Lyu (2020) and Lee et al. (2018), individually described.

Hypothesis 1, that the subjective norm explains the behavioral intention was validated, with a path coefficient of magnitude 0.233, signaling a greater propensity to consume services and products that do not harm the environment, as proposed by Bishop and Barber (2015).

These results corroborate the literature indicating that the external perception of the individual's sustainable awareness positively influences their intention to use accommodation facilities with environmental practices, corroborating studies by Han *et al.* (2010), Kim and Han (2010) and Manaktola and Jauhari (2007). The hosting intentions for referrals between individuals proposed by Su et al. (2016) are also corroborated in this research.

Hypothesis 2, that attitudinal beliefs influence the intention to stay in sustainable hotels, was validated with a path coefficient of 0.450. These results indicate that the individual's attitude of sustainable awareness positively influences the intention to use accommodation facilities with environmental practices, as indicated by Hashim *et al.* (2013) and Han et al. (2010). Thus, the recommendations that the cognitive image can have a positive influence on the intention of accommodation sustainable hotel are reinforced (Lee et al., 2010).

Finally, hypothesis 3, that the perceived behavioral control influences the intention to stay in sustainable hotels, with a path coefficient of magnitude of 0.187. This variable explains of beliefs about control, which also corroborate the studies by Han et al. (2010) and Leaniz et al. (2019), considering Brazilian issues.

Among the explanatory determinants of behavioral intention, in the context researched, attitude beliefs were those that demonstrated the highest coefficient, that is, the greatest ability to influence intention. As a result, it demonstrates the relevance of disclosure to the user that the hosting environment does in fact produce sustainable practices, as awareness has a relevant influence. This needs to be clear to the user, as the individual often realizes that the appropriation of socioenvironmental terms is only a marketing strategy, and, therefore, would be harmless in the face of attitudinal beliefs. This result implies a theoretical contribution proving the applicability of TPB in the context of sustainable hotels, corroborating the studies by Han et al. (2010), by Hashim et al. (2013), by Kim and Han (2010), by Laeniz et al. (2018), by Manaktola and Jauhari (2007), and by Su et al. (2016). The contribution with practical implications can be perceived, despite other points of view, due to the greater magnitude of attitudinal beliefs, since it allows the manager to invest in more efficient strategies, and consequently lower cost and greater economic result. The results in line with Cvelbar et al. (2017), indicate a way for hotel companies to seek competitive advantage by reducing the consumption of natural resources.

Conclusions

The research aimed to analyze the influence of the determinants of TPB in the intention of the behavior of accommodation in sustainable hotels. In this context, the variables of beliefs and the individual strength of these attitudinal, normative and control beliefs, which are the traditional determinants to explain intention and a certain behavior, in the case of accommodation in sustainable hotels, were analyzed.

The results validated the perspectives of TPB, with statistical significance for the relationships between the variables forces of attitude, subjective norm and perceived behavioral control in relation to the intention to stay in sustainable hotels. In this set of validated hypotheses, hypothesis 2, that attitudinal beliefs influence the intention to stay in sustainable hotels presented the greatest magnitude, which allows us to affirm that this is the greatest influencer of the intention to accommodation.

These results have theoretical and practical implications. In the theoretical field, it reinforces the evidence on the determinants of the use of sustainable lodgings, corroborating and contributing with findings by Hashim *et al.* (2013), by Kim and Han (2010), by Laeniz et al. (2018), by Manaktola and Jauhari (2007), and by Su et al. (2016), as well as demonstrating and contributing to the applicability of the TPB literature, corroborating findings by Han et al. (2010).

The practical implication stems from the presentation of the main determinant of the intention of hosting: attitudinal beliefs, since it allows the manager to justify strategies for disseminating effectively sustainable practices in the organization.

The main limitation of the study is the fact that it represents only the sample of respondents accessed, and that the concept of sustainable hotels can have different interpretations. Another relevant element that needs to be considered are the implications for the intention to become effective behavior, since other factors, such as price, can drastically affect the behavioral intention.

The sample is concentrated in individuals with a high academic degree, which denotes greater social responsibility and trust in scientific revelations about global warming and other environmental problems, which are not shared by the entire population. This specific research limitation is justified by the choice of teachers who typically work in the process of training human resources, and consequently transmit part of their principles and values to the next generations.

The suggestions that remain for other research would be due to limitations of this research, such as the application directly to guests of sustainable hotels, at the counter. In addition to this analysis of behavior, it would be important to develop research on the practices that are perceived as sustainable for consumers of hosting services.

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